

SHAKHOVA, Z.F.; GAVRILOVA, S.A.; ZAKHAROVA, V.F.

Analysis of molybdenum heteropoly compounds of selenium (IV).
Vest. Mosk. un. Ser. 2: Khim. 20 no.6:79-81 N-D '65.

(MIRA 19:1)

1. Kafedra analiticheskoy khimii Moskovskogo universiteta.
Submitted Feb. 26, 1965.

SHAKHOVENKO, G.V., podpolkovnik meditsinskey sluzhby; BONDARENKO, V.L.,
kapitan meditsinskey sluzhby

Experience in the use of sterilization and distillation equipment
under field conditions. Voen.-med.zhur. no.11:65-67 '64. (MIRA 18:5)

124-58-6-6894

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 6, p 91 (USSR)

AUTHOR: Shakhovkin, V.M.

TITLE: The Reason for the Diminishing Output of Water-free Petroleum Resulting From an Increase in Speed of the Water-flooding Oil-recovery Method (Prichina umen'sheniya kolichestva bezvodnoy nefti pri povyshenii skorosti vytesneniya nefti vodoy)

PERIODICAL: Sb. tr Ufimsk. neft. in-ta, 1956, Nr 1, pp 61-65

ABSTRACT: Observations made during laboratory experiments have indicated that an increased intensity of water flooding resulted in a lower yield of water-free petroleum (the experiment was performed on petroleum substantially more viscous than water). The author links this effect with the decrease in the tortuousness of the path followed by the water under increased pressure gradients. To support this thesis, a schematic analysis of the motion of a liquid through an idealized porous medium is given. Bibliography: 5 references. 1. Petroleum--Recovery 2. Water--Performance 3. Liquids--Motion 4. Mathematics--Applications L.V Lyutin

Card 1/1

Shakhovkin, V. M.

124-1957-10-11795

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 10, p 88 (USSR)

AUTHOR: Shakhovkin, V. M.

TITLE: A Three-dimensional Model of a Porous Medium (Ob'yemnaya skhema poristoy sredy)

PERIODICAL: Tr. Mosk. neft. in-ta, 1956, Nr 16, pp 23-31

ABSTRACT: In order to explain the phenomena observed during the displacement of petroleum by water, the paper presents an analysis of the movement of the boundaries between two non-mixable liquids in a model of a porous medium. The porous medium is simulated by a system of intersecting capillary tubes, forming an orthogonal spatial network. With the help of such a model the magnitudes of certain control quantities for maximum and minimum outputs are established. These quantities are expressed in terms of the ratio of the pores in which the boundary movement between the liquids takes place to the total number of pores. The A. establishes the qualitative dependence of maximum and minimum magnitudes of the petroleum output on different conditions of displacement and the degree of uniformity in the porous medium from which petroleum is displaced by water, as well as on the

Card 1/2

124-1957-10-11795

A Three-dimensional Model of a Porous Medium

water-wetting characteristics of the soil. The conclusions set forth in the article are based on logical reasonings only and are not proved either by calculations or by experiments. Also, there are no recommendations as to any practical applications for the control quantities. It is not shown by what method one could accurately simulate a real porous medium with a corresponding model. It is noted that an analogous model of a porous medium was proposed by J. E. Owens (J. Petrol. Technol., 1952, Vol 4, Nr 7) .

V. I. Aravin

Card 2/2

SHAKHOVKIN, V.M.

Determining the permeability to phases in two-fluid flow using hollow needles. Izv. vys. ucheb. zav.; neft' i gaz 3 no.9:67-72 '60. (MIRA 14:4)

1. Ufimskiy neftyanoy institut.
(Oil field flooding)

ACC NR: AP60.9993 (A, N)

SOURCE CODE: UR/0413/66/000/015/0131/0132

INVENTORS: Pal'kov, L. G.; Kutskiy, V. V.; Simkin, Ye. L.; Rubin, A. Ya.; Marinokiy, P. I.; Borolyubov, S. A.; Shakhovmina, G. V.; Chalov, V. S.; Rabinov, A. I.; Pivkov, P. M.; Ivanov, K. V.

ORG: none

TITLE: Movable apparatus. Class 49, No. 184584

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 131-132

TOPIC TAGS: metalworking, gas welding, metal welding, welding equipment, welding technology, milling machine

ABSTRACT: This Author Certificate presents a movable apparatus for machining the edges prior to welding two large objects. The apparatus contains a milling head mounted on self-propelled carriages. The head is fed axially along the outline of a detail by a pantographic copying mechanism. To increase the efficiency and the accuracy in milling the edges located on any plane upon an immovable structure, the self-propelled carriages are placed on the surfaces being machined (see Fig. 1). The apparatus itself is provided with an auxiliary milling head for machining the opposite edge facing the first one. The edges are separated by gas cutting torches placed in front of the moving apparatus.

UDC: 621.914.37-182.3:621.791.945.021

Card 1/2

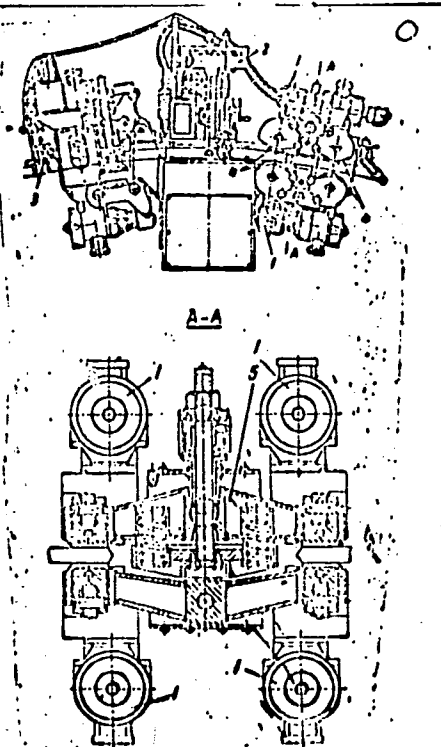
L 09257-67

ACC NR: AP6029953

Fig. 1. 1 - self-propelled
carriages; 2 - milling heads;
3 - gas cutting torches; 4 -
running rollers; 5 - coupling
device

Orig. art. has: 1 figure.

13/ SUBM DATE: 20May64



CHAKABAYEV, S.Ye.; IMASHEV, N.U.; TOKAREV, V.P.; KONONOV, Yu.S.; KORSUN, P.Ye.;
VOTSALEVSKIY, E.S.; IVANOV, V.A.; FARAFONOVA, N.V.; SHAKHOVOY, A.I.

Uzen' gas and oil field; outline of geology and oil and gas potentials.
Izv. AN Kazakh. SSR. Ser. geol. 21 no.4:16-30 J1-Ag '64. (MIRA 17:11)

1. Institut geologii i geofiziki, Gur'yev.

[illegible]

Radio beams investigate the planets. But it fails to do so.
78-79 N-G 164.

SHAPIRO, A. D.

"From the Papers of V. I. Vernadskiy," *Prirada*, No. 9, 1942.

USSR/ Scientists

Card 1/1 Pub. 124 - 30/40

Authors : Kuvanova, L. K., and Shakhovskaya, A. D.

Title : The Moscow Archives of the Academy of Sciences USSR

Periodical : Vest. AN SSSR 1, 111-112, Jan 1955

Abstract : Announcement is made concerning the addition to the Moscow Archive of the AN SSSR of many volumes of books written by the Soviet naturalist, geochemist and biochemist V. I. Vernadskiy who died in January 1945. Three USSR references (1944-1950).

Institution :

Submitted :

VERNADSKIY, Vladimir Ivanovich. Prinimala uchastiye SHAKHOVSKAYA, A.D..
VINOGRADOV, A.P., akademik, otv.red.; BARSANOV, G.P., doktor
geol.-min.nauk, red.; LICHKOV, B.L., doktor geol.-min.nauk,
red.; KUN, N.R., red.izd-va; ASTROV, A.V., red.izd-va; NOVICH-
KOVA, N.D., tekhn.red.

[Selected studies] Izbrannye sochinenia. Moskva, Izd-vo
Akad.nauk SSSR. Vol.4, book 1. 1959. 624 p. (MIRA 13:1)

1. Sotrudnik memorial'nogo kabineta V.I.Vernadskogo v Institute
geokhimii i analiticheskoy khimii Akademii nauk SSSR (for Sha-
khovskaya).

(Mineralogy)

SHAKHOVSKAYA, A.D.

From the correspondence between V.I.Vernadskii and foreign scientists.
Och.po ist.geol.znan. no.11:56-62 '63. (MIRA 16:7)
(Vernadskii, Vladimir Ivanovich, 1863-1945)

SHAKHOVSKAYA, G. P.

30-58-4-29/44

AUTHOR: None Given

TITLE: Dissertations (Dissertatsii).
Branch of Physico-Mathematical Sciences
(Otdeleniye fiziko-matematicheskikh nauk).
July-December 1957 (Iyul'-Dekabr' 1957g.)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 4,
pp. 115-116 (USSR)

ABSTRACT: 1) At the Institute for Crystallography (Institut Kristallografii) the following dissertations for the degree of a Candidate of Physical Sciences were defended:
K. S. Aleksandrov - Propagation of Elastic Waves in Par-ticular Directions in Crystals. (Rasprostraneniye uprugikh voln po osobennym napravleniyam v kristallakh).
G. P. Shakhovskaya - Working Out of an Apparatus for Ultrahigh Pressure and for the Determination of Thermal Parameters of Phase Transitions of Some Metals in it. (Razrabotka apparatury sverkhvysokogo davleniya i opredeleniye v ney termicheskikh parametrov fazovykh perekhodov nekotorykh metallov).

Card 1/4

Dissertations, Branch of Physico-Mathematical Sciences. 30-58-4-29/44
July-December 1957.

2) At the Institute for Geophysics imeni O. Yu. Shmidt (Institut fiziki Zemli imeni O. Yu. Shmidta) the following dissertations for the degree of a Doctor of Physico-Mathematical Sciences were defended:

I. K. Ovchinnikov - Screening Influence of the Topmost Layer of the Earth's Crust in the Electric Prospecting of Ore Deposits (Ekraniruyushcheye vliyaniye poverkhnostnogo sloya zemnoy kory pri elektrorazvedke rudnykh mestorozhdeniy).

3) At the Mathematical Institute imeni V. A. Steklov (Matematicheskiy Institut imeni V. A. Steklova) the following dissertations were defended:

a) for the degree of a Doctor of Physico-Mathematical Sciences:

I. P. Kubilyus - Some Investigations of the Theory of Probabilities of Numbers (Nekotoryye issledovaniya po veroyatnostnoy teorii chisel).

S. B. Stechkin - Investigations of the Theory of Power Series and of Trigonometric Series (Issledovaniya po teorii stepennykh i trigonometricheskikh ryadov).

Card 2/4

Dissertations. Branch of Physico-Mathematical Sciences. 30-58-4-23/44
July-December 1957

b) for the degree of a Candidate of Physico-Mathematical Sciences:

A. V. Yefimov - On the Approximation of Some Classes of Continuous Functions by Fourier Sums and Fejer Sums. (O priblizhenii nekotorykh klassov nepreryvnykh funktsiy summami Fur'ye i summami Feyyera).

Yu. A. Tserkovnikov - The Theory of the Microscopic Stability of Systems Which Are Connected by Powers of Remote Effect. (Teoriya mikroskopicheskoy ustoychivosti sistem, svyazannykh dal'nodeystvuyushchimi silami).

4) At the Institute for Problems of Physics imeni S. I. Vavilov (Institut fizicheskikh problem imeni S. I. Vavilova) the following dissertations for the degree of a Candidate of Physico-Mathematical Sciences were defended:
I. Ye. Dzyaloshinskiy - The Thermodynamic Theory of Weak Ferromagnetism in Antiferromagnetics. (Termodinamicheskaya teoriya slabogo ferromagnetizma antiferromagnetikov).
Ye. S. Itskevich - The Thermal Capacity of Layer Lattices at Low Temperatures. (Teployemkost' sloistyx reshetok

Card 3/4

Dissertations. Branch of Physico-Mathematical
Sciences. July-December 1957

30-58-4-29/44

pri nizkikh temperaturakh).

5) At the Institute of Physics and Technics (Fiziko-
-tekhnicheskim Institut) the following dissertations
for the degree of a Candidate of Physico-Mathematical
Sciences were defended:

A. A. Kaplyanskiy - Spectroscopic Investigations in the
Range of the Long Wave Edge of the Main Absorption of
Crystals. (Spektroskopicheskiye issledovaniya v oblasti
dlinnovolnovogo kraya osnovnogo pogloshcheniya kristallov).

N. I. Krivko - Investigation of the Ferromagnetic Reso=
nance in Some Ferrites at Low Temperatures. (Issledovaniye
ferromagnitnogo rezonansa v nekotorykh ferritakh pri niz=
kikh temperaturakh).

V. A. Romanov - The Determination of the Coefficient Re=
lations of the Inner Conversion of γ Radiation on L and M
Shells. (Opredeleniye otnosheniy koeffitsientov vnutrenney
konversii γ -luchey na L i M-podobolochkakh).

1. Physics--Bibliography 2. Bibliography--Physics

Card 4/4

AMUCHKIN, M.P., kand. tekhn. nauk; ANENKOV, N.I., inzh.; SHAKHOVSKAYA, G.V.,
inzh.

Welded pipe strength in main trunk gas line: Svar. proizv. no.2:
21-22 F '59. (MIRA 12:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.
(Pipe, Steel--Welding) (Welding--Testing)
(Gas, Natural--Pipelines)

2017年12月15日 星期五

Changes of infectivity and their resistance during storage at various temperatures. *Instr. Mikrobiol., spl. 1* issue 40 no. 2/1964 196 0 196. (USSR 17:6)

Ученый секретарь Института им. Ломоносова.

SHAKHOVSKIY, K.P.

Effect of antirheumatic preparations on the L-transformation of hemolytic streptococci and growth of their stable L-forms. Zhur. mikrobiol., epid. i immun. 40 no.11:105-111 N '63. (MIRA 17:12)

1. Iz II Moskovskogo gosudarstvennogo meditsinskogo instituta imeni Pirogova.

SHAKHOVSKIY, K.P.

Resistance of L-form bacteria to the effect of antibiotics. Antibiotiki
9 no.3:220-225 Mr '64. (MIRA 1964)

L. Kafedra mikrobiologii (zav. - deystvitel'nyy chlen ANN SSSR prof.
V.G.Timakov) II Moskovskogo meditsinskogo instituta imeni N.I.Pirogova.

SHAKHOVSKIY, K.P.

Resistance of the L-form of bacteria to heat and freezing.
Biul. eksp. biol. i med. 59 no.2:86-90 F '65.

(MIRA 18:7)

1. Kafedra mikrobiologii (zav. - deystvitel'nyy chlen AMN
SSSR prof. V.D. Timakov) II Moskovskogo meditsinskogo insti-
tuta imeni Pirogova.

L 50334-65

ACCESSION NR: AP5013243

UR/0219/65/059/005/0079/0082

AUTHOR: Shakhovskiy, K. P.

TITLE: The resistance of L-form bacteria to UV irradiation

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 59, no. 5, 1965, 79-82

TOPIC TAGS: L form bacteria, UV, biological effect, Proteus vulgaris, Salmonella, Streptococcus

ABSTRACT: A comparison was made of the resistance of stabilized L-form bacteria to the action of shortwave ultraviolet light. Five strains of stabilized L-forms, 4 strains of cultures reverted from the L-form, and 5 strains of initial cultures of the following species of bacteria were used: Streptococcus haemolyticus, Proteus vulgaris, Salmonella typhosa, and Salmonella typhimurium. Bacterial suspensions of these strains were prepared and exposed in petri dishes (in a layer 1-3 mm thick) to ultraviolet light ($\lambda = 2537 \text{ \AA}$; intensity 20 erg/mm²·sec) for periods of 30 sec — 30 min. Irradiated suspensions were then cultured with and without penicillin, and the number of

Card 1/3

L 50334-65

ACCESSION NR: AP5013243

colonies was counted. The resistance of L-forms, i.e., the number of colonies surviving various doses of irradiation, varied with the species. Moderate doses of shortwave UV radiation (1-5 min) stimulated the growth of L-forms of *Salmonella typhosa*, which is perhaps explained by changes in the biochemistry of cell multiplication (such as denaturing) under the influence of ultraviolet light. All reverted cultures were more resistant to UV irradiation than initial cultures. Irradiated L-colonies did not differ macroscopically or microscopically from the L-colonies of the control. However, the same was not true for irradiated cultures of initial and reverted forms. These cultures showed a slower growth rate than the control, and there were changes in the size and shape of some of the irradiated colonies. Experiments show that the resistance of L-form bacteria to ultraviolet irradiation hardly differs from the resistance of initial cultures, in spite of variations associated with different species and strains. This is explained by the fact that damage to the essential component (DNA) of both initial and L-forms impairs their multiplication and causes the death of the microorganism. The greater resistance to ultraviolet irradiation of some L-forms and

Card 2/3

L 50334-65

ACCESSION NR: AP5013243

their revertants may be due to the known parallelism between the effect of UV light and penicillin, both of which possess the L-transforming properties to which L-form bacteria are especially resistant. Orig. art. has: 1 table. [JS]

ASSOCIATION: Kafedra mikrobiologii vtorogo Moskovskogo meditsinskogo instituta im. N. I. Pirogova (Department of Microbiology, Second Moscow Medical Institute)

SUBMITTED: 06Feb64

ENCL: 00

SUB CODE: LS

NO REF SOV: 003

OTHER: 005

ATD PRESS: 4006

me
Card 3/3

107-57-7-29/56

AUTHOR: Rariga, G. and Shakhovskoy, A.

TITLE: Ultrashort-Wave Receiver (UEV priyemnik)

PERIODICAL: Radio, 1957, No 7, pp 17-20 (USSR)

ABSTRACT: Principles, circuit diagram, construction, and parts of a special ultrashort wave receiver for monitoring the signals from a Soviet satellite.

The principal requirements for such a receiver are: high selectivity, high sensitivity, good heterodyne-frequency stability, and minimum internal noise. The signal field intensity at the receiving antenna will be a few $\mu\text{V/m}$ only. The pass band should allow for Doppler effect. Thus, at 40 mc and satellite speed 8 km/sec the frequency variation of a signal would be about 2,000 cps, while the spectrum of the transmitted signal would be only a few cps. Allowing for heterodyne-frequency variations the pass band of the receiver should be made about 6-8 kc.

The 9-tube superheterodyne for sputnik signals, described below, is intended for 40-mc sputnik frequency. Continuous adjustment in $\pm 50\text{-kc}$ band and special measures for heterodyne-frequency stabilization facilitate the search for signal. A quartz calibrator may be used for fine tuning. One half-wave antenna (described in 107-7-30/56) is sufficient for the receiver.

Card 1/2

-57

107-57-7-29/56

Ultrashort-Wave Receiver

For better image-channel selectivity an i.f. of 1,600 kc was chosen. I-f pass band is 8 kc. The receiver sensitivity (at signal-noise ratio 3/1) is 2 μ v or better for a modulated signal, or 0.7 μ v for c.w. The receiver consumes about 60 w a-c.

A detailed description of construction, parts, and their mounting and wiring is given; also aligning and tuning of the receiver.

Tube types used are: 6Zh4, 6K3, 6A7, 6N8S, 5Ts4S; all other parts are also Soviet made.

There are 4 figures and 2 Soviet references in the text.

AVAILABLE: Library of Congress

Card 2/2

Shakhovskoy, A.

AUTHOR: Rzhiga O. and Shakhovskoy A.

107-8-27/62

TITLE: Observations of the Signals of Artificial Earth Satellites
(Methods of Observations). (Nabludeniye za signalami iskusstvennykh sputnikov zemli (Metodika nabludeniya)).

PERIODICAL: Radio, 1957, # 8, pp 17-19 (USSR)

ABSTRACT: To receive signals from a satellite, half-wave dipoles as well as loop vibrators may be used as antennas. Dipoles may be made of metal tubes, antenna cable or of stranded wire, suspended by two stretching wires. Long feeder lines should be made of HF cable matched with the antenna and the input impedance of the receiver.

A simple antenna with a wave impedance of 300 ohms can be manufactured of TV-cable "KATB-300" as shown by Fig 1.

The appearance of the satellite may be indicated by an intermittent tone of 0.2 to 1.5 cps.

The duration of one observation varies from 5 to 10-15 minutes, depending on the sensibility of the receiving equipment.

Card 1/6

TITLE:

107-8-27/62
Observations of the Signals of Artificial Earth Satellites
(Methods of Observations). (Nabludeniye za signalami iskusstvennykh sputnikov zemli (Metodika nabludeniy)).

quartz. For obtaining this, the heterodyne frequency of the receiver is to be stabilized either by quartz or by a very careful application of the parametric frequency stabilization.

It is much easier to utilize an ordinary receiver and, in addition, a generator with a standard frequency of $40 \text{ mc/s} \pm 2 \text{ kc/s}$, for instance, the quartz calibrator "KK-6".

In this case, the local heterodyne is to be switched off and the detected pulsations between the signal and the oscillations of the calibrator are to be recorded on a magnetic tape.

For this purpose, the "Communication" terminals of the calibrator are to be slightly connected by loose coupling with the antenna input of the receiver. This method eliminates the influence of the heterodynes of the receiver, and the pulsations resulting from interacting oscillations with stable frequencies.

The signal frequency and that of the harmonic of the calibrator being similar, will be separated by the selective system of the receiver from the sum of all other frequencies.

Card 3/6

TITLE:

107-8-27/62
Observations of the Signals of Artificial Earth Satellites
(Methods of Observations). (Nabludeniyе za signalami iskusstvennykh sputnikov zemli (Metodika nabludeniy).

Before starting the observation, the receiver is to be tuned, by means of a quartz calibrator, to a frequency of 40 mc/s.

For this purpose, the local heterodyne is switched on and its frequency is stabilized at a value approximately 2 kc lower than that of the intermediate frequency.

The main tuning-knob of the receiver will serve to obtain zero beat by means of head phones.

At the end of these operations, the receiver can be considered as preliminarily tuned to the desired frequency, and the local heterodyne is to be switched off.

The variation of the beat frequency in function of time is shown by Fig. 3, where the horizontal axis represents the reception time and the vertical one the frequency variations due to the Doppler Effect. The method of application of the Doppler effect and of the arithmetical mean of the maximum and minimum frequency values is described in detail, as well as the method of zero beat utilizing the tape recorder.

Card 4/6

TITLE:

107-8-27/62
Observations of the Signals of Artificial Earth Satellites
(Methods of Observations). (Nabludeniye za signalami iskusstvennykh sputnikov zemli (Metodika nabludeniya)).

Tape recorders can also be used for observations of the ionosphere effects. The arrangement for simultaneous recording of signals at 20 and 40 mc is shown by Figure 5. When the tape recorder is played back and when its outlet is connected to an oscillograph, a continuous image of alternating signals will result from both satellite transmitters.

However, both signals will seem to be superimposed, as shown by Fig 6. This is due to some persistence of vision and to the rapid alternation of the signals. The amplitudes of the signals U_{HF} and U_{VHF} can be measured directly on the screen of the oscillograph (but the HF signal should not be on the slope of the frequency characteristic of the receiver).

In order to avoid interference, the HF and VHF antennas are to be installed at a certain distance from each other (at least 5-10 m) and directed along the meridian.

Six figures accompany this article.

INSTITUTION:
PRESENTED BY:

None

SUBMITTED:

AVAILABLE:

Card 6/6

At the Library of Congress

NOV/100-3-7-2/23

AUTHORS: Kotel'nikov, V. A., Dubrovin, V. M., Morozov, V. A., Rzhiga, O. N., Shakhovskoy, A. M.

TITLE: Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites (Ispol'zovaniye effekta Dopplera dlya opredeleniya parametrov orbity iskusstvennykh sputnikov zemli)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Nr 7, pp 873-881 (USSR)

ABSTRACT: The frequency shift produced by the Doppler effect as a result of the motion of an earth satellite is appreciable enough to be employed in the evaluation of the time when the satellite is at a minimum distance from the point of observation (the receiver), and the corresponding air-to-ground distance and velocity. In the first approximation it can be assumed that the path of the satellite is linear (see Fig.1), so that its distance from the receiver can be expressed by:

$$r = \sqrt{r_0^2 + v_0^2 \Delta t^2} \quad (1)$$

Card 1/5 where $\Delta t = t - t_0$, where t_0 is the instant when the

SCV/100-3-7-2/23

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

satellite is at the point B and r_0 is the corresponding
air-to-ground distance. The frequency shift due to the
Doppler effect is expressed by:

$$\Delta F = - \frac{1}{\lambda} \frac{dr}{dt} = - \frac{v_0}{\lambda} \frac{\Delta t}{\sqrt{\Delta t^2 + \left(\frac{r_0}{v_0}\right)^2}} \quad (2)$$

Eq.(2) was used to plot a number of curves for a satellite
transmitter operating at $f_0 = 40$ Mc/s for various values
of r_0 and v_0 , where v_0 is the average velocity of
the satellite. The curves are shown in Figs.2 and 3 where
 ΔF is in c/s and Δt in sec. The instant of the maximum
approach (or minimum distance) of the satellite can be deter-
mined from the curves of Figs.2 and 3, bearing in mind that

Page 2/6

30V/100-3-7-2/23

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

they are symmetrical with respect to f_0 (as shown in Fig.4);

t_0 is simply evaluated by constructing a secant which intersects the curve at a point O in such a way that its segments between O and two other intersecting points are equal (see Fig.4). The instant of maximum approach can also be determined analytically by approximating the frequency-time curve by means of straight lines (as shown in Fig.5), but this procedure is less accurate. Eq.(2) can also be written as Eq.(11). If this equation is plotted in

Δt^2 and $\Delta t^2/\Delta f^2$ coordinates a straight line is obtained (see Fig.6) which intersects the coordinates at a and b ; it is thus possible to determine the average velocity v_0

and the minimum distance r_0 . These quantities are expressed by Eqs.(14) and (15) respectively. If the motion of the satellite is rectilinear but is subject to an acceleration a_0 , the distance between the transmitter and the receiver is given by Eq.(16), and the frequency shift is expressed by Eq.(17). If the acceleration a_0 is

Card 5/5

SOV/109-3-7-2/23

Application of the Doppler Effect for the Determination of the
Orbital Parameters of the Artificial Earth Satellites

comparatively small (as was the case with the two Soviet satellites) the frequency shift is expressed approximately by Eq.(18). The presence of acceleration destroys the symmetry of the frequency-time curve (see Fig.7) so that the time of maximum approach, when determined from such a curve, is subject to an error. The magnitude of the error δt for various distances is plotted in Fig.8. The parameters of a satellite can be determined more accurately if its trajectory is assumed to be curvilinear (see Fig.9); here the true trajectory is represented by curve 1, the approximate curvilinear trajectory by curve 2 and the tangent to the orbit by straight line 3; the centre of the approximate trajectory is situated at point C and its radius vector is equal to R_0 . The distance between the satellite and the receiver can then be expressed by Eq.(19). If the motion of the satellite is uniform, the angle θ is expressed

Card 4/6

SOV/100-5-7-2/23

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

by Eq.(21) so that the frequency shift is given by Eq.(22). If θ is comparatively small the frequency shift is given approximately by Eq.(23). Experimentally, the task of determining the orbital parameters of the satellites by the Doppler effect was carried out by the Institute of Radio Engineering and Electronics of the Soviet Academy of Sciences at a frequency of 40 Mc/s. The actual time-frequency curve taken on October 10, 1957, is shown in Fig.10. The graphical method was used for determining t_0 , r_0 and v_0 and the results are shown in the table on p 880 and in Fig.11. It was found that the errors in determining t_0 were 0.2 to 1 sec, while v_0 and r_0 could be determined

Card 5/6

NOV/10, -5-7-2/25

Application of the Doppler Effect for the Determination of the
Orbital Parameters of the Artificial Earth Satellites

with an error of 3 to 5%. There are 12 figures.

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute
of Radio Engineering and Electronics of the Soviet Academy
of Sciences)

SUBMITTED: April 11, 1958.

1. Satellite vehicles trajectories--Mathematical analysis 2. Doppler
navigation systems--Applications

Card 6/6

KOTEL'NIKOV, V. A., akademik; GUS'KOV, G. Ya.; DUBROVIN, V. M.;
DUBINSEIY, B. A.; KISLIK, M. D.; KORENBERG, Ye. B.; MINASHIN,
V. P.; MOROZOV, V. A.; NIKITSKIY, N. I.; PETROV, G. M.;
PODOPRIGORA, G. A.; RZHIGA, O. N.; FRANTSESSON, A. V.;
SHAKHOVSKOY, A. M.

Radar tracking of the planet Mercury. Dokl. AN SSSR 147 no.6:
1320-1323 D '62. (MIRA 16:1)

1. Institut radiotekhniki i elektroniki AN SSSR.

(Mercury(Planet)) (Radar in astronomy)

KOTEL'NIKOV, V.A.; APRAKSIN, L.V.; VOYTOV, V.O.; GOLUBTSOV, M.G.;
DUBROVIN, V.M.; ZAYTSEV, N.M.; KORENBERG, Ye.B.; MINASHIN, V.P.;
MOROZOV, V.A.; NIKITSKIY, N.I.; FETROV, G.M.; RZHIGA, O.N.;
SHAKHOVSKOY, A.M.

Radar system used in the Venus probe of 1961. Radiotekh.
i elektron. 7 no.11:1851-1859 N '62. (MIRA 15:11)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radar)
(Venus probes)

KOTEL'NIKOV, V.A.; DUBROVIN, V.M.; MOROZOV, V.A.; PETROV, G.M.;
RZHIGA, O.N.; TRUNOVA, Z.G.; SHAKHOVSKOY, A.M.

Results of Venus radar probes conducted in 1961. Radiotekh.
i elektron. 7 no.11:1860-1872 N '62. (MIRA 15:11)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Venus probes)
(Radar)

KOTEL'NIKOV, V.A., akademik; DUBROVIN, V.M.; KISLIK, M.D.; KORENBERG, Ye.B.;
MINASHIN, V.P.; MOROZOV, V.A.; NIKITSKIY, N.I.; PETROV, G.M.;
RZHIGA, O.N.; SHAKHOVSKOY, A.M.

Radar observation of Venus. Dokl. AN SSSR 145 no.5:1035-1038
'62. (MIRA 15:8)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Radio astronomy) (Venus (Planet))

L 14255-63

EWI(1)/FBD/FCC(w)/BDS/EEC-2/EDD-2/ES(v) AFFTC/APGC/ASD/

ESD-3 Ps-4/Pi-4/Pj-4/Pk-4/Pl-4/Pm-4 PT-2/WR

ACCESSION NR: AP3004417

S/0020/63/151/004/0811/0814 109
98

AUTHOR: Kotel'nikov, V. A.; Dubrovin, V. M.; Dubinskiy, B. A.; Kisluk, M. D.;
Kuznetsov, B. I.; Petrov, G. M.; Rabotvayov, A. P.; Rzhiga, O. N.; Shakhovskoy,
A. M.

24
TITLE: Radar observations of the planet Mars in the Soviet Union

SOURCE: AN SSSR. Doklady*, v. 151, no. 4, 1963, 811-814

TOPIC TAGS: Mars radar observations, Mars reflected-signal spectrum, Mars Doppler-frequency shift, Mars rotation time, Mars reflection coefficient

ABSTRACT: Radar observations[✓] of Mars[✓] northern hemisphere from 14°30' to 14° latitude and from 310 to 360° and from 0 to 140° longitude were carried out in the Soviet Union on 6-10 February 1963 at a frequency of approximately 700 Mc. The polarization of radiated waves was circular, with antenna polarization changing to linear during reception. The energy of the signal incident on the visible surface of Mars was 1.2 w. Both transmission and reception lasted approximately 11 minutes. The signal had the shape of alternate rectangular transmissions and intervals of a duration of 4.096 sec each, at two frequencies

Card 1/42

L 11255-63

ACCESSION NR: AP3004417

10

differing by 62.5 cps. The signals were recorded on a magnetic tape together with a 2000-cps oscillation, which served as a scale. Receiver sensitivity was calibrated before and after operation on the basis of Cassiopeia-A discrete-source radiation. The correction for frequency shift due to the Doppler effect was regulated by an electronic digital frequency meter. In all, 99 observations were made, and the signal reflected from Mars was reliably detected on the nights of February 7-8 (28 observations) and February 8-9 (20 observations). The results of spectral analysis of these 48 observations, carried out with 4-cps filters and a storage time of 8.5 hr, are shown in Fig. 1 of the Enclosure. In the reflected signal spectrum, there is a narrowband component whose energy exceeded by 4 times the RMS measurement error caused by noise. The average reflection coefficient, determined as the ratio of the reflected-signal energy to received-signal energy under the assumption that Mars was an even, ideally conductive sphere, was found to be 7%. "The authors thank L. V. Apraksin, V. O. Voytov, M. M. Dedlovskiy, G. A. Zhurkina, A. M. Lukin, M. M. Sinodkin, B. A. Stepanov, A. V. Frantsesson, D. M. Tsvetkov, and I. A. Sharabarin for their assistance." Orig. art. has: 3 figures, 1 table, and 1 formula.

Association: Inst. of Radio and Engineering and Electronics

Card 2/42

L 18 26-63 EWT(d)/EWT(1)/FS(s)/BDS AEDC/AFFTC/AFMDC/AFMTC/APGC/ASD/
 ESD-/RADG/SSD Pg-h/P1-h/P1-h/Po-h/Pq-h TT/GW
 ACCESSION NR: AT3007033 S/2560/63/000/017/0091/0100

90
87

AUTHOR: Kotel'nikov, V. A.; Dubrovin, V. M.; Rzhiga, O. N.;
Shakhovskoy, A. M.

TITLE: Reception and study of characteristics of radio signals
from Soviet space rockets

SOURCE: AN SSSR. Iskusst. sputniki Zemli, no. 17, 1963, 91-100

TOPIC TAGS: rocket, space rocket, moon rocket, lunar rocket,
 Lunik, Lunik 1, Lunik 2, Lunik 3, Lunik radio transmission, Lunik
 radio reception, ionospheric interference, Faraday rotation

ABSTRACT: The receivers used for recording 20-Mc and 40-Mc signals
 from the three 1959 Lunik rockets are described, and features of
 the data received are discussed. The same general type of receiver
 served for all three rockets, (see Fig. 1 of the Enclosure). The
 20- and 40-Mc signals (19.993 and 39.986 Mc, precisely) were keyed
 alternately in transmission, so that one or the other receiver

Card 1/04

L 18186-63

ACCESSION NR: AT3007033

channel was always active. The mixing and multiplying shown gave IF signals, modulated at 1 kc and 2 kc, whose tuning could be monitored on two Lissajous patterns using a 1-kc crystal. The detector time constant was variable from 0.5 to 5 sec, and filter 13 had stepped bandpass settings of 50, 100, or 250 cps; the settings for filter 14 were double these values. The antenna preamplifiers had noise figures of 3-5 (20 Mc) and about 2 (40 Mc). The 20-Mc antenna had upper and lower stages of three elements each, with a gain of 8-10 and a 200-m² aperture; it was located on a steep coastal cliff [not identified]. The second stage took advantage of signal reflection from the sea surface to augment total reception; the receiver could be switched to either or both stages as desired. The 40-Mc antenna used a ten-element array having two independent channels to permit reception of signals with non-mutually perpendicular polarization; antenna gain was 20 with an aperture of 100 m². Analysis of received signals included the following findings: 1) Signal amplitude modulation revealed rotational periods of the instrument packages of 108 sec for Lunik 1 and 86 sec for Lunik 2. Lunik 3 showed a 165-sec rotational period.

Card 2/4

L 18186-63

ACCESSION NR: AT3007033

before it was stabilized to enable it to take photographs of the moon, after which it resumed rotation at a 180-sec period. 2) The 20-Mc signals were generally good except when swamped in ionospheric noise between sunrise and sunset and when the vehicle was not in the line of sight. An exception appeared to be an abrupt loss of the 20-Mc signal from Lunik 1 for 25 minutes in line of sight and passing closest to the moon; this occurred more than two hours before sunrise and hence was not the result of the usual solar-induced ionospheric noise. The simultaneous transmission at 183.6 Mc showed no such interruption. 3) The 40-Mc signals did not show as great a sensitivity to solar ionospheric effects and could be detected when the rocket was some 15 minutes below the earth's horizon. 4) Prior to impacting on the moon Lunik 2 transmission at 20 Mc showed a net Doppler shift of (-)50 cps in the final half hour of flight, indicating an increase in approach radial velocity of 750 m/sec. Lunar impact was confirmed by both 20-Mc and 183.6-Mc signals to have occurred at 0002 hr, $22.25 \pm .25$ sec, Moscow time. 5) Faraday rotation caused by the ionosphere was clearly seen in 20-Mc reception from Lunik 2 as it

Card 3/4

L:18186-63

ACCESSION NR: AT3007033

passed from dark to sunlight, when the period of signal polarity reversal decreased from 40 sec to 10 sec over a 35-min interval. The report includes sample recordings and photographs of the 20- and 40-Mc antennas. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 16Jun62

DATE ACQ: 11Oct63

ENCL: 01

SUB CODE: AS, GE

NO REF SOV: 001

OTHER: 000

Card 4/4

L 12933-63 EWT(1)/FBD/FCC(w)/BDS/EEC-2/EED-2/ES(v) AFFTC/AFMDC/APGC/ASD/
ESD-3 Pa-4/Pi-4/Pj-4/Pk-4/Pl-4/Pm-4 PT-2/GW/WR 117

ACCESSION NR: AP3003845

S/0020/63/151/003/0532/0535 102

AUTHOR: Kotel'nikov, V. A. (Academician); Dubrovin, V. M.; Dubinskiy, B. A.;
Kislik, M. D.; Kuznetsov, B. I.; Lishin, I. V.; Morozov, V. A.; Petrov, G. M.;
Rzhiga, O. N.; Sy*tsko, G. A.; Shakhovskoy, A. M.

TITLE: Radar observations¹² of Venus²⁴ in the Soviet Union in 1962

SOURCE: AN SSSR. Doklady*, v. 151, no. 3, 1963, 532-535

TOPIC TAGS: radar observation, Venus observation, average reflected signal spec-
trum, reflection coefficient, broadband component, frequency-modulated reflected
signal, reflected signal envelope, noise envelope

ABSTRACT: From 20 October to 21 December 1962, radar observations of Venus were
made, each of a duration of 4.5 to 7 min. The radar employed was the same used
in 1961 observations but with its sensitivity improved by a factor of 6 by means
of a paramagnetic ruby amplifier placed at the receiver input and through an in-
crease in transmitter power. In order to eliminate the average noise level in
the received signal, the frequency of the transmitted signal was shifted 62.5 cps
every 4.096 sec. The frequency spectrum of the reflected signals was recorded
on magnetic tape and investigated by means of a 20-channel analyzer. The average

Card 1/63

L 12933-63

ACCESSION NR: AP3003845

spectrum of reflected signals plotted on the basis of the sum of measurements at both frequencies radiated by the transmitter is shown in Fig. 1a of Enclosure. The spectrum was analyzed by filters with a passband of 1 cps. The frequency values of analyzer filter tunings f in relation to the frequency of central filter f_0 are plotted along the abscissa, while value p , representing the ratio of reflected signal power in each filter band to the signal power in the central filter band, is plotted along the ordinate. Dotted lines show the RMS value of measurement errors caused by noise. Except for the central filter, which yields a higher signal level, the reflected signal spectrum may be approximated by the exponential function

$$p = 0.37 \exp (-0.42 |f - f_0|).$$

The reflection coefficient of Venus measured on the basis of reflected signal energy within 20 cps varied during the two-month period between 12 and 18%. In the 1-cps band reflected energy was lower than total energy by a factor of 2.5 to 3. The spectrum of the broadband component of the reflected signal observed previously was also observed. Here the transmitted signal consisted of constant periodic transmissions whose frequencies differed from each other by 2000 cps and whose duration was 4.096 sec. The analyzer filter passband was 100 cps. The measurements showed a strong probability of the presence of the broadband component

Card 2/83

L 12933-63

ACCESSION NR: AP3003845

14

in the 300-cps band. The average spectrum of frequency-modulated reflected signals which was analyzed by filters with passbands of 1 and 4 cps is shown in Fig. 1b. The same quantities as in Fig. 1a are plotted along the coordinate axes, and range axis ΔR is indicated under the assumption that the spectrum maximum corresponds to reflection at a point situated at the shortest distance from Earth in the center of the visible disk of Venus. The data of Fig. 1b may be approximated by the hyperbola

$$p = 0.625 (f - f_0 + 0.625)^{-1}.$$

Fig. 2a shows the diagram of the envelope of the reflected signal obtained on 24 November 1962 during a 4.5-min study of the unmodulated carrier. The receiving channel passband was 6 cps before the linear detector; and the integrating circuit time constant was 6 sec after it. For comparison, Fig. 2b shows the noise envelope diagram for an analogous channel shifted in frequency by 62.5 cps containing no signal. "The authors thank the following persons for their assistance: L. V. Apraksin, R. S. Bondarenko, V. O. Voytov, M. M. Dadlovskiy, N. M. Dmitriyev, V. S. Dovgello, V. I. Krivda, V. M. Makhorin, G. A. Podoprigora, N. M. Sinodkin, G. I. Slobodenyuk, Z. G. Trunova, A. V. Frantsesson, and D. M. Tsvetkov."
Orig. art. has: 4 figures and 2 formulas.

Card 3/63

Inst. of Radio Engineering & Electronics

KOTEL'NIKOV, V.A., akademik; LUBKOVIN, V.M., nauchnyy sotrudnik;
KUZNETSOV, D.I.; PETROV, G.M., nauchnyy sotrudnik;
RZHIGA, G.N., nauchnyy sotrudnik; SHAKHOVSKOY, A.M.,
nauchnyy sotrudnik

Successes of planetary radio-location. Priroda 53 no.9:
2-12 '64. (MIRA 17:10)

KOTEL'NIKOV, V.A., akademik; APRAKSIN, L.V.; DUBROVIN, V.M.; KISLIK,
M.D.; KUZNETSOV, B.I.; PETROV, G.M.; RZHIGA, O.N.; FRANTSESSON,
A.V.; SHAKHOVSKOY, A.M.

Radar contact with Jupiter. Dokl. AN SSSR 155 no. 5:1037-1038
Ap '64. (MIRA 17:5)

1. Institut radiotekhniki i elektroniki AN SSSR.

KOTEL'NIKOV, V.A., akademik; ALEKSANDROV, Yu.N.; APPAKSIN, I.V.; DUBROVIN,
V.M.; KISLIK, M.D.; KUZNETSOV, B.I.; PETROV, G.M.; RZHIGA, O.N.;
FRANTSESSON, A.V.; SHAKHOVSKOY, A.M.

Radar observations of Venus in the Soviet Union in 1964. Dokl.
AN SSSR 163 no.1:50-53 J1 '65. (MIRA 18:7)

1. Institut radiotekhniki i elektroniki AN SSSR.

L 16668-65 EWT(m)/EPF(c)/ENP(j)/T Pc-4/Pr-4 RM

ACCESSION NR: AP4044195

S/0079/64/034/008/2625/2630

AUTHOR: Shakhovskoy, B. G.; Stadnichuk, M. D.; Petrov, A. A. B

TITLE: Investigations in the area of unsaturated organosilicon compounds. XIV. Synthesis and hydrogenation of certain conjugated diyne silicon hydrocarbons 1

SOURCE: Zhurnal obshchey khimii, v. 34, no. 8, 1964, 2625-2630

TOPIC TAGS: unsaturated organosilicon compound, conjugated diyne silicon hydrocarbon, diacetylenic silicon hydrocarbon, alkadiyne magnesium bromide, tetraalkylsilane, hydrogenation, catalytic hydrogenation

ABSTRACT: Diacetylenic silicon hydrocarbons with the silicon atom at the triple bond were synthesized, then hydrogenated in the presence of Pd/CaCO₃. 1-Trimethylsilylpentadiene-1,3, 1-trimethylsilylhexadiene-1,3, 1-trimethylsilylheptadiene-1,3 were obtained by reacting the suitable alkadiene magnesium bromide with trimethylchlorosilane in a nitrogen atmosphere. Upon reduction of these compounds, the first mole of hydrogen added rapidly to the triple bond not linked

Card 1/2

L 16668-65
ACCESSION NR: AP4044195

to the Si (α to the Si atom) and subsequent hydrogenation to the tetraalkylsilane proceeded much more slowly. IR spectra for the diacetylenic compounds and the reduction products were obtained and discussed in detail. Orig. art. has: 3 figures and 1 table

ASSOCIATION: Leningradskiy tekhnologicheskii institut imeni Lensovet
(Leningrad Technological Institute)

SUBMITTED: 13Jun63

ENCL: 00

SUB CODE: OC

NO REF SOV: 008

OTHER: 004

Card 2/2

SHAKHOVSKOI, B.I.; STADNICHUK, M.I.; PETROV, A.A.

Saturated organosilicon compounds. Part IV: Synthesis and
bromination of some conjugated diyne silicon hydrocarbons.
Zhur. ob. khim. 35 no.10.1514-1520 O '65. (MIRA 22:10)

1. Leningradskiy tekhnologicheskii institut imeni Leningrada.

SHAKHOVSKY, B.G.; STANDNICHUK, M.D.; PETROV, A.A.

Unsaturated organosilicon compounds. Part 16: Addition of
alkyllithium to 1-trimethylsilyl-1,3-hexadiyne. Zhur. ob.
khim. 35 no.6:1031-1036 Se '65. (MIRA 18:6)

1. Leningradskiy tekhnologicheskii institut imeni Lenooveta.

SHAKHOVSKOI, G. P.

✓ Fusion temperatures of zinc, cadmium, thallium, and antimony at pressures up to 30,000 kg./sq. cm. V. P. Butuzov, E. G. Ponyatovskii, and G. P. Shakhovskoi. Doklady Akad. Nauk S.S.S.R. 109, 519-20 (1954).—The app. and its use were described by Butuzov, et al. (C.A. 51, 3269a). The pressure was measured to ± 100 kg./sq. cm., the temp. to $\pm 3^\circ$. A rise in pressure to 30,000 kg./sq. cm. raises the m.p. of pure Zn by 129° , of Cd by 187° , and Tl by 190° . The m.p. of Sb drops with rising temp., and the slope of the curve to the pressure axis increases from 0.46° to 1000 kg./sq. cm. to 2.8° at 30,000 kg./sq. cm.

W. M. Sternberg

for
MT

BUTUZOV, V.P.; SHAKHOVSKOY, G.P.; GONIKBERG, M.G.

Intensifiers for conducting studies in superhigh pressures and
high temperatures. Trudy Inst.krist.no.11:233-238 '55.
(Hydraulic machinery) (MIRA 9:6)

SHAKHOVSKOY, G.P.

MELTING TEMPERATURE OF ZINC, CADMIUM, THALLIUM, AND ANTIMONY AT PRESSURES UP TO 30,000 kg/cm². V. P. Butuzov, E. G. Ponyatovskii, and G. P. Shakhovskoi. (Inst. of Crystallography). Doklady Akad. Nauk S.S.S.R. 109, 519-20 (1956) July 21. (In Russian)

SHAKHOVSKOY G P

137-58-1-2042D

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 277, (USSR)

AUTHOR: Shakhovskoy, G. P.

TITLE: The Development of Super-high Pressure Equipment and Determination Thereby of Thermal Parameters of Phase Transformations in Certain Metals (Razrabotka apparatury sverkhvysokogo davleniya i opredeleniye v ney termicheskikh parametrov fazovykh perekhodov nekotorykh metallov)

ABSTRACT: Bibliographic entry on the Author's dissertation for the degree of Candidate of Physical-Mathematical Sciences, presented to the In-t kristallogr. AN SSSR (Institute of Crystallography, USSR Academy of Sciences), Moscow, 1957

ASSOCIATION: In-t kristallogr. AN SSSR (Institute of Crystallography, USSR Academy of Sciences), Moscow

1. Metals--Thermal analysis 2. Instrumentation--Development

Card 1/1

SHAKHOVSKOY, G.P.

²⁷
~~Determination of the heat of transformation of the cerium~~
~~(Phase. M. G. Goukberg, G. P. Shakhovskoi, and V. P.~~
~~Butuzov (Inst. Cryst., Acad. Sci. U.S.S.R., Moscow).~~
~~Zhur. Fiz. Khim. 31, 380-8 (1957); cf. C.A. 51, 3250a.~~
 The heat of transformation was detd. thermographically by
 the method described by Yoder (C.A. 43, 2371i) with a Ce
 sample contg. 1.5% Nd, 1.3% Pr, 0.1% Pb, and 0.01% Sn at
 pressures up to 13,000 kg./sq. cm., reached in 11 min.
 Tests were made at const. temp. and at increasing pressures
 close to the Ce transformation pressure, and, as a standard,
 Hg was used (m.p. -22.2° at 12,000 kg./sq. cm.). The
 heat of Ce transformation at 13-18 $^{\circ}$ was 880 ± 40 cal./g.
 atom at a pressure of 7000 kg./sq. cm. X-ray investigation
 proved the Ce modification at high pressure to be identical
 with the low-temp. modification (showing the existence of a
 common face-centered cubic lattice ($a = 4.12 \text{ \AA}$) and a
 compressed lattice of the same type ($a = 4.12 \text{ \AA}$)).
 W. M. Strassberg

SHAKHOVSKOY, G. P.

7
1-4E2C

MEASUREMENTS OF THE MELTING POINTS OF ALUMI-
NUM AND COPPER AT PRESSURES UP TO 18000 kg/cm².

M. G. Gonikberg, G. P. Shakhovshoy, and V. P. Butuzov
(Inst. of Crystallography, Acad. of Sciences, U.S.S.R.).
Zhur. Fiz. Khim. 31, 1839-42(1957) Aug. (In Russian)

Determination of Al and Cu melting points in an inert gas
showed that within the limits of experimental error the
melting points of the metals rise linearly with the pressure.
The applicability of Simon's equation to the melting points
of metals at high pressure is discussed. (tr-auth)

11
gr
hr

SOV-120-53-3-21/53

AUTHORS: Boksha, S. S., Shakhovskoy, G. P.

TITLE: An Apparatus for Obtaining Ultra High Pressure and Simultaneously High Temperature (Apparatura sverkhvysokogo davleniya s odnovremennym polucheniyem vysokikh temperatur)

PERIODICAL: Priroda i Tekhnika Eksperimenta, 1958, Nr 3, pp 86-90 (USSR)

ABSTRACT: An apparatus is described for obtaining ultra high gas pressures and high temperatures using a multiplier described in Ref.4. The entire apparatus is shown in Fig.1. The gases may be compressed up to a pressure of 30 000 kg/cm² with a simultaneous achievement of temperatures of the order of 2000°C. A method is also described for obtaining ultra high gas pressures using solid carbon dioxide. The apparatus has been used to study the variation of the melting point of metals with pressure, e.g. aluminium and copper. Another substance which was studied was black crystalline phosphorus. Fig.2 shows that the melting point of copper and aluminium increases linearly with pressure in the range 2000 to 20 000 kg/cm². It is well-known that phosphorus takes up a number of polymorphous forms: yellow, red, black amorphous and black crystalline. Up to the present time no one has succeeded in melting black phosphorus

Card 1/2

SOV-120-58-3-21/33

An Apparatus for Obtaining Ultra High Pressure and Simultaneously High Temperature

under high pressure. It is shown that as the pressure increases right up to approximately 20 000 kg/cm², no changes in black phosphorus can be observed. At 18 000 kg/cm² the melting temperature of black phosphorus is about 1000°C. There are 2 figures, no tables and 22 references, of which 12 are Soviet and 10 are English.

ASSOCIATION: Institut kristallografii AN SSSR (Institute of Crystallography of the Academy of Sciences, USSR)

SUBMITTED: August 31, 1957.

1. High pressure research--USSR
2. High temperature research--USSR
3. Metals--Melting
4. Phosphorus--Melting

Card 2/2

85352

1.1210

S/120/60/000/005/022/051
E191/E381

AUTHOR: Shakhovskoy, G.P.

TITLE: Pressure Multiplier for Tests at Super-high Pressures
and High Temperatures 21

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No. 5,
pp. 95 - 97

TEXT: A new design of a pressure multiplier is described in which tests can be carried out at pressures up to 30 000 atm and temperatures up to 1 500 °C in a working space of

100 - 120 cm³, compared with 12-14 cm³ available in existing multipliers. The new unit was constructed in the Institute of Crystallography of the AS USSR. The design incorporates high- and low-pressure blocks connected by ten staybolts. The high-pressure block consists of an externally conical superhigh-pressure vessel, a sleeve and a plunger. 10-12 separate insulated electrical conductors can be introduced into the conical vessel. The low-pressure blocks are hydraulic press cylinders. The upper press, developing up to 600 tons, is used to produce the superhigh pressure by pressing the plunger into the bore of the conical vessel. The lower press supports the thrust of the

Card 1/3

S/120/60/000/005/022/051

E191/E381

Pressure Multiplier for Tests at Super-high Pressures and High Temperatures

conical vessel and develops up to 800 tons. The presses operate with oil at 700 atm pressure supplied by 6 pumps. All the seals of the multiplier are designed on the principle of unbalanced areas. The transmitting liquid producing the superhigh pressure in the bore of the conical vessel is either isopentane or its mixture with n-pentane which does not solidify at room temperature up to 35 000 atm. For work at temperatures exceeding 700 °C, argon or nitrogen is used instead of isopentane. If so, special seals are required and the feeding of gas with a preliminary pressure of 2 000 atm. Using carbon or silicon carbide or even platinum wire heaters a temperature of 1 500 °C at pressures up to 25 000 atm. could be achieved. The pressure was measured by the variation of a manganin wire resistance to an accuracy of ± 100 atm. Using a special design of the superhigh-pressure block, the author achieved pressures up to 130 000 atm measured by the polymorphous transformation of bismuth.

Card 2/3

85352

S/120/60/000/005/022/051

E191/E381

Pressure Multiplier for Tests at Super-high Pressures and
High Temperatures

There are 1 figure and 6 references: 5 Soviet and 1 English.

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography of the
AS USSR)

SUBMITTED: Muly 15, 1959

Card 3/3

also 3409

27718
S/120/61/000/003/031/041
E073/E535

1.6600

AUTHORS: Shakhovskoy, G. P. and Ponyatovskiy, Ye. G.

TITLE: On using certain material as pressure transmitting media

PERIODICAL: Pribery i tekhnika eksperimenta, 1961, No.3, pp.177-178

TEXT: Hardly any data have been published in literature on the pressure gradients along the height of a high pressure chamber during the process of compression of solid media. The aim of this work was to determine the pressure gradient along the height of a chamber in which silver chloride, teflon, paraffin wax, pyrophillite and talc stone were used. These materials are electric insulators and permit physical and chemical investigations at elevated temperatures and also introduction of the heating elements into the high pressure chamber. The investigations were carried out in a super-high pressure multiplier. The high pressure vessel (see sketch) was made of steel 45XHMΦA (45KhNMFA) heat treated to a hardness of 55 R_c. The rod 1 which produced the pressure was made of the tungsten carbide BK4.5 (VK4.5) with a compression strength of 61 to 63 tons/cm².
Card 1/5

On using certain material ...

27718
S/120/61/000/003/031/041
E073/E535

The high pressure chamber was 20 mm high and 12 mm diameter. At the bottom the chamber was closed with a conical steel part 2 which also served for introducing the electric current and was insulated from the body by mica washers 3 and 4. At the top, a 3 mm thick copper probe 6 was placed between the substance to be compressed 5 and the pressure generating rod 1. This copper probe (plate) served both as a sliding contact and as a seal. The pressure inside the chamber was measured from the pressure of the polymorphous transformations of bismuth, which at 20°C equal 25.9 and 27.7 katm. The polymorphous transformations were recorded by a thermal method from the change in the temperature of the specimen resulting from the transformation. For this purpose a 5 mm diameter 3 mm high bismuth specimen 7 was placed into the substance being investigated. Into the centre of the specimen the joint of a thermocouple 8 was introduced, one branch of which was connected to the electric input lead, whilst the other end was connected to the copper seal. The distance from the centre of the bismuth specimen to the electric input lead was 10 mm. During the experiments the pressure in the

Card 2/5

On using certain material ...

27718

S/120/61/000/003/031/041
E073/E535

channel of the pressure multiplier was made to increase or decrease in a continuous manner. If the pressure of the specimen reached the pressure of the first or the second transformation of bismuth, an appreciable increase or decrease of the temperature of the specimen occurred which showed as a peak on the thermograph. This method is simpler than the method of measuring the electric resistance and permits measuring the pressure in a solid plastic material at any point of the high pressure chamber. The pressure directly under the rod is calculated from the ratio of the areas of the rod and the piston of the top press of the pressure multiplier, taking into consideration friction in the piston glands. From the data of thermal analysis, the pressure gradients between the rod and the centre of the high pressure chamber were determined for various media. The specific pressure applied to the rod in the case of a pressure in the centre of the chamber of 25.9 katm was 29.1 katm for silver chloride, 30.7 for teflon, 31.2 for paraffin wax, 40.9 and 42.4, respectively, for pyrophyllite and talc stone. Consequently, the pressure gradients between the rod and the

Card 3/5

On using certain material ...

27718
S/120/61/000/003/031/041
E073/E535

X

centre of the chamber were 3.2, 4.8, 5.7, 15.0 and 16.5 katm, respectively. These values also include the pressure gradient along the height of the copper seal. Similar data were obtained by measuring the pressure in the chamber on the basis of the electric resistance of a bismuth wire using a method similar to that described by H. Tracy Hall (Ref.4: Rev. Scient. Instrum., 1958, 28, No.4, 267). It can be seen from these data that the smallest pressure gradient was observed for silver chloride (a single crystal block was used in the experiments) and the highest gradient was obtained in talc stone. The high pressure gradient in pyrophyllite can be reduced (from 68 to 40%) by placing a 0.5 to 0.7 mm thick layer of lead between the pressure transmitting medium and the walls of the chamber. This shows that the major part of the pressure gradient in the solid phase is due to friction at the boundary between the chamber walls and the pressure transmitting medium. Thus, the obtained results show that even in such plastic media as silver chloride and paraffin wax the pressure gradient along the height of the chamber is quite considerable and that the conditions of the pressure from all sides differ substantially from hydrostatic

Card 4/5

On using certain material ...

27718

S/120/61/000/003/031/041

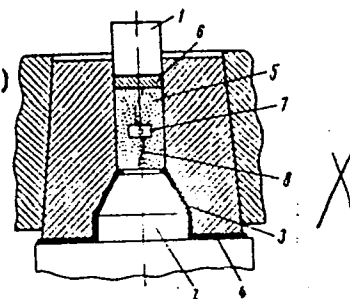
E073/E535

conditions. This factor must be taken into consideration in investigations carried out in the solid phase, particularly if pyrophyllite or similar material are used as pressure transmitting media. There are 1 figure and 8 references: 3 Soviet and 5 non-Soviet. The English-language references read as follows: P. W. Bridgman, The Physics of High Pressure, 1949, London; D. T. Griggs, J. F. Bell, Bull. Geol. Sci. America, 1938, 48, 1723; P. W. Bridgman, Proc. Amer. Acad. Arts and Sci., 1952, 34, 169; P. Anderatch, O. U. Anderson, Rev. Scient. Instrum., 1957, 28, No.4, 288.

ASSOCIATION: Institut kristallografii AN SSSR
(Crystallography Institute AS USSR)

SUBMITTED: May 20, 1960

[Abstractor's Note: Abridged translation.]



Card 5/5

18 9500 (1043, 1143)

25894

S/070/61/006/004/006/007

EO73/E335

14, 7500 (1160, 1144, 1482)

AUTHORS Belyayev, L.M., Shakhovskoy, G.P., Smirnov, S.P.
and Kuz'mina, I.P.

TITLE: Growing of Cadmium Sulphide Crystals at Elevated Pressures

PERIODICAL: Kristallografiya, 1961, Vol. 6, No. 4,
pp. 641 - 643

TEXT: Mentioning work of other authors, it is stated that interesting results were achieved by Medcalf and Fahring (Ref. 5 - J. Electrochem. Soc., 105, 719-724, 1958). The authors of this paper developed more simple apparatus for growing cadmium-sulphide crystals (Fig. 1). It consists of a thick-walled cylinder 4 with a cover 2, which is fastened by eight bolts 3. The tightening of the cover is accomplished with pressure ring 9 and two gaskets 8. The cylinder carries four electric input leads 10, two of which connect the thermocouple 5 and the other two connect the heating element 7. The cover has a T-shaped pipe 1 which carries a manometer and a valve for filling the cylinder with an

Card 1/4

+

25894

S/070/61/006/004/006/007

Growing of Cadmium Sulphide Crystals..E073/E335

inert gas. Inlet 6 is used for purging the cylinder before an experiment. For thermal insulation, the entire internal volume between the walls of the vessels and the reflecting screens is filled with magnesium oxide or aluminium oxide. To improve the cooling of the cylinder walls the entire cylinder is placed into a container with running water. The heating element is a spiral of molybdenum wire which surrounds the crucible containing pressed CdS powder. The crucible is made of pure graphite. Tests were conducted in which the temperature was gradually raised to 20-30 °C above the melting point of CdS, maintained for 1.5 hours and then lowered at a rate of 30 °C/hour. It was found that the optimum growth of crystals is achieved at 150-180 atm. pressure of the inert gas, which corresponds to an initial pressure of 80-100 atm. In the tests, columnar CdS single crystals were obtained, which grew together, parallel to each other. The single crystals could be easily separated from each other by fracturing. In most cases the c axis coincided with the vertical axis of the ingot. The growth of these crystals was initiated from large CdS crystallisation centres which

Card 2/4

25894

S/070/61/006/004/006/007

Growing of Cadmium Sulphide Crystals E073/E335

formed at the bottom of the crucible due to the fact that the heat was removed primarily through the bottom. The produced single CdS crystals are of an orange colour, they are transparent and in thin layers; the intensity of the coloration along the height of the ingot differs somewhat; brighter sections form at the beginning of the growth of the crystal and darker sections form at the end. In experiments carried out at temperatures considerably above the CdS fusion temperature, the centre part of the ingot contained a large quantity of fine cavities and bubbles, which is obviously associated with partial dissociation of the CdS. The weight losses during crystallisation did not exceed 10%.

There are 3 figures and 6 references: 1 Soviet and 5 non-Soviet. The three English-language references quoted are: Ref. 1 - R. Frerichs - Phys. Rev., 72, 7, 594-601, 1947; Ref. 3 - A. Addamiano - J. Phys. Colloid. Chem., 61, 9, 1253-1254, 1957; Ref. 5 (quoted in text).

Card 3/4

Growing of Cadmium Sulphide Crystals ..

25894

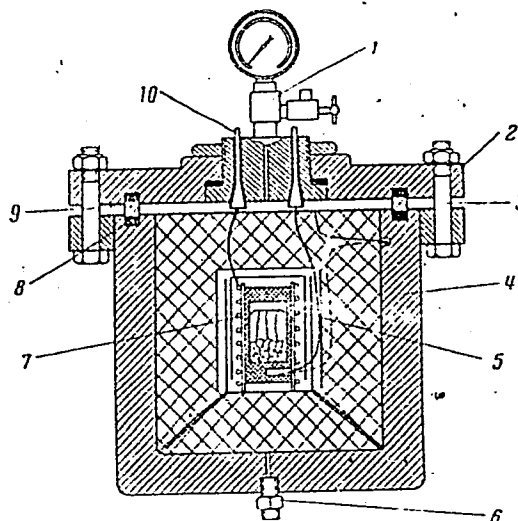
S/070/61/006/004/006/007

E073/E335

ASSOCIATION: Institut kristallografii AN SSSR
(Institute of Crystallography of the
AS USSR)

SUBMITTED: October 25, 1960

Fig. 1:



Card 4/4

SHAKHOVSKOY, G.P.; LAVROV, I.A.; PUSHKINSKIY, M.D.; GONIK~~BERG~~, M.G.

Equipment for determining the compressibility of liquids. Prib.i
tekh.eksp. 7 no.1:181-183 Ja-F '62. (MIRA 15:3)

1. Institut organicheskoy khimii AN SSSR.
(Compressibility--Measurement)

S/120/62/000/001/046/061
E039/E485

AUTHORS: Shakhovskoy, G.P., Lavrov, I.A., Pushkinskiy, M.D.
Gonikberg, M.G.

TITLE: Apparatus for determining the compressibility of
liquids

PERIODICAL: Pribery i tekhnika eksperimenta, no.1, 1962, 181-183

TEXT: The apparatus consists of a metallic sylphon bellows filled with the liquid under investigation and subjected to external hydraulic pressure. The change in length of the sylphon bellows is proportional to the change in volume of the contained liquid under the applied pressure. A wire with high electrical resistance is attached to the bottom of the bellows and slides along a contact fixed to the outer containing wall of the apparatus. By passing a current through the wire, potentiometric measurements can be made between the sliding contact and the end of the wire, hence giving a measure of the change in length of the bellows. A correction is made for the change in resistance of the wire with pressure. Data is given on the compressibility of distilled water at 0°C and compared with the results of Bridgeman Card 1/32 ✓

Apparatus for determining ...

S/120/62/000/001/046/061
E039/E485

(see Table). The maximum difference between the authors' results and those of Bridgeman is 0.12%. Yu.A.Rumyantsev participated in the work. There 2 figures and 1 table.

ASSOCIATION: Institut organicheskoy khimii AN SSSR
(Institute of Organic Chemistry AS USSR)

SUBMITTED: June 15, 1961

Card 2/5

SHAKHOVSKOY, G.P.; LAVROV, I.A.; GONIKBERG, M.G.; RUMYANTSEV, Yu.A.

Apparatus for viscosity measurements under pressure. Prib. i
tekhn. eksp. 8 n. 5:203-207 S-0 '63. (MIRA 16:12)

1. Institut organicheskoy khimii AN SSSR.

ANALIZIROVANIYE N. V. TIFINOMIYOVA, N. A.

Udina, for optical observations of ...
tekst. zap. 8 no. 8, 191 N. 4. 160.

1. Institut kristallografii AN SSSR

GONIKBERG, M.G.; SHAKHOVSKOY, G.P.; LIBERMAN, A.L.; VASINA, T.V.

Compressibility of cis- and trans-1,3-dimethylcyclohexanes. Zhur.
fiz.khim. 38:1891-1893 Ag '63. (MIRA 16:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Cyclohexane) (Compressibility)

GONINBERG, M.G.; SHAKHOVSKOY, G.P.

Viscosity and density of nitrobenzene - ~~N~~-methylaniline and
nitrobenzene - pyridine mixtures at high pressures. Zhur. fiz.
khim. 39 no.2:468-470 F '65. (MIRA 18:4)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

L 27914-66 EWT(m)/EWA(d)/EWP(t)/ETI IJP(c) JD
 ACC NR: AP6007847 SOURCE CODE: UR/0120/66/000/001/0218/0218
 AUTHOR: Shakhovskoy, G. P. 32
B
 ORG: Institute of Organic Chemistry AN SSSR, Moscow (Institut organicheskoy khimii AN SSSR)
 TITLE: Fine-adjustment valve for pressures up to 5 katm
 SOURCE: Priboiy i tekhnika eksperimenta, no. 1, 1966, 218
 TOPIC TAGS: high pressure valve, liquid flow, pressure regulator/KhGSNA steel, ShKh steel
 ABSTRACT: The author describes a valve developed at the Institute of Organic Chemistry (Fig. 1), whose construction is based on the principle of the differential screw thread. In this valve the pitch of the stem thread is 3 mm, and that of the bushing is 2.82 mm, so that one revolution of the stem results in a total displacement of the needle of $3 - 2.82 = 0.18$ mm. The valve body is made of steel 30 KhGSNA and the needle is made of steel ShKh-18. The valve can regulate liquid at pressure of 5 katm and velocity ~ 5 cm³/min with accuracy $\pm 1\%$. The valve can be used for lower pressures and also for gases. Orig. art. has: 1 figure.
 SUB CODE: 13, 14/ SUBM DATE: 19Dec64/ ORIG REF: 001/ OTH REF: 003
 Card 1/2 UDC: 621.646.2:539.893 2

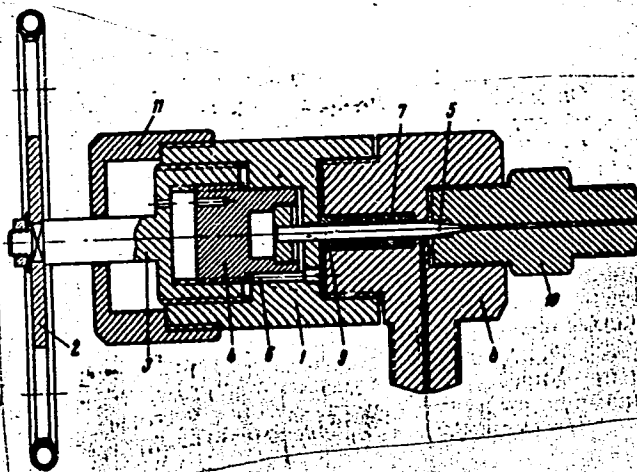
L 27914-66

ACC NR:

AP 007847

0

Fig. 1. Diagram of valve.
1 - Cup, 2 - handle, 3 -
stem, 4 - bushing, 5 -
needle, 6 - pin, 7 -
gland, 8 - valve housing,
9 - bushing, 10 - nipple,
11 - nut.



Card

2/2

BKG

SHAKHOVSKOY, N.M.

33883. Pyeryemyennaya X Cygni V 1948 G. Byullyetyen: Vsesoyuz. Astron. -
Gyeodoyez. G-va. No 6, 1949, C.41.

SC: Letopis' Zhurnal'nykh Statey, Vol. 46, Moskva, 1949.

SHAKHOVSKOY, N.M.

Two variable stars. Astron. tsir. no. 154:11-12 W '54. (MLBA 8:6)

1. Stalinabadskaya astronomicheskaya observatoriya.
(Stars, Variable)

SHAKHOVSKIY, N.M.

Six uninvestigated variables. Astron. tsir. no. 155:16-17 D
'54. (MIRA 8:6)

1. Stalinabadskaya astronomicheskaya observatoriya AN
Tadzhikskoy SSR.
(Stars, Variable)

Shakhovskoy, N.M.
SHAKHOVSKOY, N.M.

Three recently discovered variable stars. Per. zvezdy 10
no.5:309-312 '55. (MLRA 9:9)

1. Stalinabadskaya astronomicheskaya observatoriya AN
Tadzhikskoy SSR.

(Stars, Variable)

SHAKHOVSKOY, N.M.

MS Aquilae. Biul.Stal.astron.obser. no.12:30-33 '55. (MIRA 8:7)
(Stars, Variable)

SHAKHOVSKOY, N.M.

Cepheids VW and VZ Puppis. Biul.Stal.astron.obser. no.14:
14-21 '55. (MLRA 9:10)

(Stars, Variable)

SHAKHOVSKOY, N.M.

An uninvestigated variable star. Bul.Stal.astron.obser.
no.14:35-38 '55. (MLRA 9:10)

(Stars, Variable)

SHAKHOVSKOY, N.M.

On 17 uninvestigated variables. Astron.tsir. no.157:17-18 F'55.
(MLRA 8:10)

1. Stalinabadskaya astronomicheskaya observatoriya
(Stars, Variable)

SHAKHOVSKOY, N.M.

New variable BD+6°2020=SPZ 1222 Hydrae. Per.zvezdy 11 no.1:
59-60 Ja '56. (MLRA 10:2)

1. Stalinabadskaya astronomicheskaya observatoriya.
(Stars, Variable)

SHAKHOVSKOY, N.M.

Three little investigated variable stars. Biul.Stal.astron.obser.
no.17:27-33 '56. (MIRA 10:1)
(Stars, Variable)

SHAKHOVSKOY, N.M.

UU Cancr. Biul. Stal. astron. obser. no. 17:34-35 '56.

(MIRA 10:1)

(Stars, Variable)

SHAKHOVSKOY, N.M.

Elements and the luminosity curve of V. 748 Cygni. Biul. Stal. astron.
obser. no. 18:12-16 '56. (MIRA 10:6)
(Stars, Variable)